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ABSTRACT

The teacher program described here is intended to provide a model for the teaching of science in individually guided education, emphasizing teaching strategies that are drawn from successful Individually Guided Education programs. Information is provided here on the purposes and content of the program as well as activities and resources. A critique, history of development, and ordering information are also included in the description. (DS)

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DESCRIPTION OF TEACHER INSERVICE EDUCATION MATERIALS

SUMMARY INFORMATION

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Title: INDIVIDUALLY GUIDED SCIENCE

Publication Date(s): 1977

Intended Users: Inservice and preservice teachers who are involved in studying and/or implementing individually guided science programs

Grade Level(s): Elementary school

Number: Group

Primary Focus: The intent of the program is to provide a model for the teaching of science in individually guided education, emphasizing teaching strategies that are drawn from successful IGE programs.

School subject(s) and/or inservice topic(s) covered:

The school subject dealt with is elementary science. Science is defined and discussed as structured knowledge; as inquiry processes; as a way of learning; as a subject.

The inservice topic addressed is IGE. It is discussed in terms of its nature, structure and function. Different components of IGE organization are explained, i.e., the Instruction and Research Unit, the Instructional Improvement Committee, and the Systemwide Program Committee.

What participant does in using the materials:

A variety of formats are offered for an inservice program: a) when the program objective is for participants to understand individually guided science; b) when the objective is to become competent in implementing it. Using multimedia materials, the participants attend workshop sessions which are directed by an instructor. In a performance/competency based program, pretests are administered, instructional objectives are identified, and a posttest is given. In other learning settings, workshop components may be adapted to the user's own design.

Resources: Program components include a textbook, an Instructor's Guide, a film, and two filmstrips with accompanying tape cassettes (see 2.0 for titles). These materials may be used together or independently of one another, depending upon the needs and objectives of the users. Users will have to make the necessary arrangements in terms of equipment, space and administration. In such a case, a 16mm film projector, screen, filmstrip projector and viewing space are needed in addition to the program materials themselves.

Describer critique:

All components of this program are notably well-planned and well-presented. The film and filmstrips are delightful to watch: they depict--through beautiful outdoor scenes of children observing and inquiring in "nature's classroom"--how the concepts and processes of IGE work; in this case in a science class. The program is highly recommended for those who wish to better understand the mechanisms of IGE, applied to science instruction or any other discipline.

SCI19 individualized instruction - teaching strategies TD

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1.0 PURPOSES:

Rationale

While the reasons these materials were developed were to both introduce educators to individually guided education and to give them guidelines for implementing IGE science programs, the program rationale is the rationale for IGE itself. The text, Individually Guided Science, explains: "In teaching science, each child needs to be considered as an individual. This fact is often overlooked in traditional, class-size programs of instruction. Children are alike in some respects, but they differ in many others including needs, interests, abilities, states of readiness, background of experience, and often in terms of cultural outlook. These differences are taken into account in science programs which are individually guided.

Goals

It may be inferred from the Instructor's Guide that program goals are individualized, and will depend on the needs of the user group. Interpretations are offered in the guide for three types of programs: undergraduate teacher education; graduate teacher education and inservice non-credit teacher education. Goals, then, are determined by individual users, with the underlying purposes being to obtain information on IGE and/or to gain competency in implementing IGE programs, particularly in science.

Objectives

As IGE is itself an objective-based system of education, "objectives" are a constant theme in these materials. Within the context of the training program, objectives are listed at the beginning of each chapter in the text, and illustrative detailed objectives are given in the Instructor's Guide. For example, the objectives for Chapter 1 are:

> "To comprehend the nature of IGE as a comprehensive system of schooling designed to product higher educational achievements through providing for differences among students in rate of learning, learning style, and other characteristics.
>
> "To comprehend the structure and function of the components of the multi-unit organization including the Instruction and Research Unit, the Instructional Improvement Committee, and the System-wide Program Committee.
>
> "To identify and describe the functions of the seven steps in instructional programming for the individual student.
>
> "To identify the chief characteristics of curricular materials which are compatible with IGE."

2.0 CONTENT — Scope and Sequencing of Topics:

Scope

The following are the components of the set, Individually Guided Science.

Textbook:	Individually Guided Science by Richard E. Haney and Juanita S. Sorenson, 200 pp.
Instructor's Guide:	Instructor's Guide for Individually Guided Science by Richard E. Haney and Juanita S. Sorenson, 84 pp.
Film:	"Children Learn Science" sound/color, 16mm, 20 minutes
Filmstrips:	1) "Objective-Based Science Instruction" color, 18 minutes 2) "Managing Individually Guided Science Instruction" color, 18 minutes
	(Both filmstrips have accompanying audiotapes equipped with audible and inaudible signsls; a guide which contains directions and transcripts is also provided.)

A brief description of the components follows:

In the textbook, the emphasis is on the rationale and implementation of individually guided science programs. Suggestions for adapting published science programs for instructional programming for the individual student are developed in detail.

The film, in the words of the developers, " . . . shows students learning both the content and processes related to life, earth, and physical sciences. Instructional programs for individualized students are cooperatively planned and implemented by the I&R Unit Staffs."

The filmstrips are described by their developers. The first filmstrip shows "the use of objectives in planning and implementing instructional programs for individual students in science." The second filmstrip explains "the function of the evaluation as it relates to making decisions about instructional programs in science."

The Instructor's Guide is designed to provide information that will be useful to the instructor in integrating and synthesizing the multimedia materials.

Sequence

A sequence for using the materials has been established by the developers and is explained in the Instructor's Guide. Alternative structures for workshop design are also offered.

3.0 ACTIVITIES AND RESOURCES INVOLVED IN USE OF PRODUCT

3.1 Description of main inservice activities:

Several possibilities exist for using the program materials in a training design. One of these, for a performance/competency based program, is depicted by a flow chart in the Instructor's Guide. It's major components are:

-Select instructional objectives
-Select items for pretest from guide
-Administer pretest
-Score test

An example of how instructions are given is seen in the following:

Did (participant) meet all objectives?
Yes: -Move to next chapter
No: -Match learning alternatives in guide with (participant) needs based on preassessment
-Use textbook and visuals and carry out other instructional activities

3.2 Help given in use of product:

The Instructor's Guide for INDIVIDUALLY GUIDED SCIENCE is provided for the person who administers the course. The developers note that it is necessary for the instructor and participants to have a familiarity with IGE: "Instructors, and also their students, who may be unfamiliar with Individually Guided Education and therefore might have unanswered questions, would do well to learn about it in order to understand how individually guided science functions in IGE schools."

4.0 EVALUATION OF TEACHER INSERVICE LEARNING

A system of programmed instruction is detailed in the Instructor's Guide. The same method applies to each of the text's seven chapters and consists of four basic components: I) Chapter Objectives and Illustrative Detailed Objectives (Suggested Activities for accomplishment of each activity are included, as are Suggested Evaluation Procedures); II) Competencies, Activities, and Evaluation; III) Resources.

5.0 ORDERING INFORMATION

5.1 Resources required/recommended for implementing product:

The developers suggest a few possible schedules for the program, noting that participants may wish to meet every day for three to five days, or once a week for three to five weeks, or perhaps once a month for a semester. They also note that in non-credit programs, program implementors may wish to use either the text or the visuals alone, or to omit some of the visuals. Whichever components are chosen, appropriate audiovisual equipment will be needed: a 16mm projector for the film, and a filmstrip projector and tape cassette player for the filmstrips. An instructor is needed to provide organizational arrangements and to administer the program. The Competencies, Activities, and Evaluation sections at times call on participants to demonstrate mastery of certain skills--in which case they need access to a group of pupils.

5.2 Distributor name/address:

Social Science and Humanities Division
Addison-Wesley Publishing Company, Inc.
Reading, Massachusetts 01867

(617) 944-3700

5.3 Components/approximate costs:

Component	Purchase	Rental	No. Req.	Reusable
INDIVIDUALLY GUIDED SCIENCE	Total: $75.95-245.95	no		
Text: Individually Guided Science	$5.95	no	1/participant	yes
Instructor's Guide		no	one	yes
Film: "Children Learn Science"	$240	$40	one	yes
Filmstrip: "Objective-Based Science Instruction"	$15	no	one	yes
Filmstrip: "Managing Individually Guided Science Instruction"	$14	no	one	yes

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6.0 HISTORY OF DEVELOPMENT

6.1 Identification of the developer:

These materials were produced by the IGE Teacher Education Project of the University of Wisconsin-Madison, under the direction of Herbert J. Klausmeier, who is the Series Editor and Director. The authors of the text, Richard E. Haney and Juanita S. Sorenson, have been involved in preparing teachers and other school personnel for many years. This program, and the other sets in the series, represent the collective study of the many persons at the University of Wisconsin who are involved in researching IGE.

6.2 How developed and when:

The program here described is part of a ten-set series on IGE, which were all developed under a grant made by the Sears-Roebuck Foundation to the IGE Teacher Education Project at the University of Wisconsin-Madison, in 1973. The materials in the series, printed materials correlated with films and filmstrips, were published in 1977 and copyrighted by the Board of Regents of the University of Wisconsin System.

6.3 Evidence of effectiveness with users:

The program developers did not provide field test results on the product. However, the developers have been involved for several years in researching, creating and evaluating IGE programs.

DESCRIBER CRITIQUE

Appropriateness / adaptability / technical quality:

The print and visual materials of the program are very appropriate to their purposes, and should enable all users to achieve the chapter and overall program objectives. The developers offer several possible applications of the program, and emphasize that components of the set may be used independently of one another--giving the program a high adaptability rating. The product can be used for inservice teacher education as well as for undergraduate and graduate teacher training. The visuals in this program are of remarkable quality, both technically and content-wise. The printed materials are equally well presented: the text and Instructor's Guide are clearly outlined and extremely thorough.

Content accuracy/social fairness/community acceptance issues:

Extreme care has been taken by the developers to present racial and ethnic and sex balance in the visuals. In the Editor's Foreword to the text, it is noted that, "members of minority groups . . . reviewed the visuals so as to avoid having any racism and sexism appear in them."

Community acceptance problems should occur only where IGE is itself at issue.

Overall summary/comment:

These materials operate on two levels: 1) they provide a definition and a model of IGE in action, using a science class as an example of how IGE principles operate; and, 2) they offer one interpretation of effective science instruction itself. For this reason, they are of great interest to teachers in all disciplines while still being an excellent guide to science teachers in particular. The visuals are beautifully done, though the describer felt that the content of the filmstrips was somewhat repetitive, as the same information was presented in the 16mm film. (Those with strict time limits or operating under monetary constraints may wish to eliminate one or the other.) The set as a while is positive, enlightening, and well "programmed." Users should be very satisfied with what the materials can provide in the way of practical guidelines for implementing effective individually guided instruction.

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